

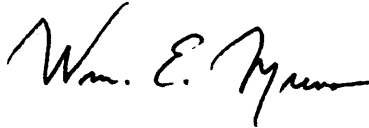
**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V**

MEMORANDUM

DATE: OCT 02 2001

SUBJECT: EPA Region 5 Response to National Remedy Review Board
Recommendations for the Lower Fox River Superfund Site

FROM: William E. Muno, Director
Superfund Division
EPA Region 5



TO: Bruce K. Means, Chair
National Remedy Review Board

EPA Region 5 appreciates comments by the Remedy Review Board (Board) on the proposed remedial action for the Lower Fox River Superfund Site (Site) presented to the Board on July 29, 1999. The Board's comments were provided to EPA Region 5 in a memorandum dated September 17, 1999 for consideration by EPA Region 5 and the Wisconsin Department of Natural Resources (WDNR) for revision of the Remedial Investigation/Feasibility Study (RIFS) and Proposed Plan for the Site. WDNR, cooperatively with EPA Region 5, has recently completed revisions to the RIFS for the Lower Fox River Superfund Site. WDNR and EPA Region 5 are planning to jointly issue a Proposed Plan for public comment by the first week of October 2001. Revisions to the RIFS have incorporated all the Remedy Review Board's comments in its September 17, 1999 memorandum. The bulleted points in smaller font below are from the Board's September 17, 1999 memorandum. EPA Region 5 responses follow in **bold** font.

- Given the volume and complexity of the supporting analyses for this decision, the board is not in a position to endorse a particular cleanup level. However, the proposed 250 ppb cleanup level for PCBs differs from levels the board has seen at other PCB sediment sites. While the board fully acknowledges that site-specific circumstances often result in different cleanup levels for the same contaminant, the board recommends that the region explain in the proposed plan and ROD for this site (1) the risk bases and management considerations supporting the 250 PPB cleanup level, and (2) how this level is consistent with the broader environmental cleanup objectives for Green Bay.

Revisions to the RIFS have modified cleanup level evaluations consistent with the Board's recommendations, and are discussed below. These modifications and the risk basis and other rationale are discussed in Section 5 of the Feasibility Study (FS). Results from this analysis are also discussed in the FS Section 8.

- As the RI/FS for OU 5 is not yet complete, the state/region presented to the board only preliminary plans to address Green Bay contamination. The board understands that, at this time, the state/region plans to rely on monitored natural processes (MNP) to address contaminated sediment in Green Bay. Given the inter-relationship between the bay and river, and the importance of coordinating cleanup activities in these areas, the board recommends that the state/region describe in detail the parameters it will use to evaluate the progress and ultimate success of the MNP alternative. The board further recommends that the state/region expand its discussion of MNP to include the advantages and disadvantages of such a strategy in the context of the NCP's nine criteria.

As suggested, the Monitored Natural Processes (described in this draft RIFS as "Monitored Natural Recovery") is discussed in greater detail in FS Sections 6, 7, 8, and 9. Removal of fish advisories would ultimately be the criteria for success, as described in FS Section 4. The rationale for selection of this alternative is discussed in FS Sections 6 through 9. Specifically, Remedial Action Objectives (RAO's) define the goals for any selected remedy, including Monitored Natural Recovery (MNR).

The FS Appendix C provides a Long-Term Monitoring Plan including "Exit Criteria." This Monitoring Plan states, "Long-term monitoring may be discontinued if decision-making evaluations show that the "exit criteria" for the project has been achieved or that meaningful change has occurred as a result of the remedy." The exit criteria, as defined by the RAO's, are defined in greater detail. This Monitoring Plan also gives clear guidance regarding application of the RAO's, describing how monitoring should be conducted.

These monitoring considerations are considered in the NCP nine criteria evaluation in the FS Section 9. This is a particularly crucial part of evaluation of Long-term Effectiveness ("Adequacy and Reliability of Controls").

In general, these evaluations make it clear that thoughtful consideration has been given to Monitored Natural Recovery as a potential remedy, and how success (or lack thereof) would be determined.

- The state/region relies extensively on complex models both to characterize the health and environmental threats at this site, and to evaluate the feasibility and effectiveness of the remediation options. Given this, the board recommends that the state/region explain in the proposed plan and ROD (1) how it chose the models, and (2) the key assumptions used in the models.

The models and their basis, including key assumptions, are given detailed, indepth explanation in the "Model Documentation Report." Additionally, the basis for the model and its results are summarized in FS Sections 5 and 8.

- The state/region indicates that, over time, various river segments will recover slowly

through natural processes. While the state/region plans to rely on these natural processes to achieve remedial action objectives (e.g., 250 ppb sediment weighted average concentration (SWAC) for PCBs) for OUs 2 and 5, it proposes more aggressive alternatives for OUs 1, 3, and 4. For the latter OUs, the board recommends that the state/region also evaluate alternatives that use less stringent target sediment levels (e.g., 500 ppb, or 1 ppm) to guide dredging activity. As indicated for OUs 2 and 5, monitored natural processes may be effective in reducing residual (post-dredging) sediment concentrations to the ultimate cleanup goal of 250 ppb. While these less aggressive, lower cost alternatives may require more time to achieve RAOs, they may still achieve protective sediment concentrations in a reasonable amount of time.

Consistent with the Board's recommendation, the draft RIFS has been revised to evaluate multiple cleanup levels (or Action Levels). Action Levels were evaluated for PCB concentrations of 125 ppb, 250 ppb, 500 ppb, 1000 ppb and 5000 ppb. This evaluation consists of: 1) determining the immediate post remediation surface weighted average concentration (SWAC); and 2) using models to determine time to achieve Sediment Quality Thresholds (SQT), the SWAC necessary to be protective for receptors. In summary, results from this fate and transport and bioaccumulation modeling provide relative time estimates to achieve protective contaminant concentrations in sediments necessary for human and ecological receptors.

- The board supports the state/region's work to model how remedial action in one segment of river will affect the alternatives analyses for segments downstream. (For example, if aggressive action is taken upstream of an OU, it may reduce the time downstream sediments will need to achieve RAOs through less aggressive means or natural processes.) The board believes such analyses will be particularly helpful in evaluating whether less aggressive cleanup options mentioned above are feasible.

Various Action Level combinations within the river and Green Bay were evaluated, as discussed in the FS Section 5 and Appendix B of the Model Documentation Report. This analysis was carried forward in the FS Section 8, where results for 13 different combinations of Action Levels for the Lower Fox River and Green Bay are summarized in Tables 8-15 and 8-17.

- The state/region presented an extensive study of scouring in the lower Fox River in support of their proposal to dredge at depth (i.e., up to 10 feet or more). The region should describe in more detail how scouring events may affect risk downstream and in Green Bay, over time. In addition, the state/region should clarify how the proposed actions address the risk from scouring. The board notes that such a discussion in the proposed plan may help to justify the absence of "capping" alternatives for several OUs, as well as the proposal to dredge to depths greater than 10 feet in some areas.

The Proposed Plan addresses this issue in detail. This is based upon several technical evaluations. Analysis of the potential for scour is evaluated in Appendix A of the Model Documentation Report (Technical Memorandum 2g), and in an evaluation by the EPA Region 5 FIELDS group. These analyses evaluate

water bottom surveys by the U.S. Army Corps of Engineers, the United States Geological Survey, and EPA. These surveys document water bottom movements (i.e., scour and deposition of sediments) in the De Pere to Green Bay river reach, commonly showing sediment movement of 2- to 3-feet. The magnitude of this observed movement is significantly greater than potential error (6-inches) for surveys after 1990. This demonstrates the instability of sediments in this portion of the Lower Fox River (the navigation channel portion of the De Pere Dam to Green Bay reach).

It should be noted that this analysis is limited to the De Pere to Green Bay reach where higher concentrations are relatively deeper in the sediment column. However, in the river reaches above the De Pere Dam virtually all PCBs (98%+) are within the top 39-inches of sediments. In addition to the water bottom surveys, water column measurements show that PCBs are in the water column, and migrating into Green Bay, the atmosphere, and Lake Michigan. The FS documents the current PCB loadings, and projects future loadings estimates from the Lower Fox River into Green Bay (Figure 10-14).

- The board notes that for OUs 3 and 4, the state/region's preferred alternative assumes a nearby, and thus relatively low cost, dewatering and disposal site in the vicinity of Holland, WI. However, for these same OUs, the region's other dredging alternatives rely on different dewatering and disposal sites. The board recommends that the state/region use the same dewatering and disposal site assumptions in evaluating all dredging alternatives to ensure a more balanced comparison among them. The state/region's cost analysis for partial dredging and capping should include the same dredging method, disposal and treatment options

Both dredging technologies evaluated consider local landfills as the disposal option. Alternatives using mechanical dredging could use the same disposal facility as discussed in association with the hydraulic dredging alternative (the preferred alternative). Cost and feasibility would be essentially the same as other disposal facilities generally considered in the mechanical dewatering alternatives. The hydraulic dredging alternative considers facilities in southern Brown County because it would rely on a pipeline for the dredge slurry along an access route available only for southern Brown County. Cost savings for the hydraulic dredging alternative are realized because the disposal facility would serve double duty - as both a dewatering facility as well as the disposal site. Mechanical dewatering would need to be dewatered on-site and then trucked to the final disposal location. This alternative could not utilize a pipeline because mechanical dredging does not produce a hydraulic slurry with sufficient water content that can be pumped in pipeline to the disposal facility..

- The proposed action for OUs 3 and 4 use a pipeline for transport of dredged waste to a nearby facility to dewater and contain dredged sediments. As proposed, this preferred option includes a contingency to truck the sediment to other locations if this nearby facility is not able to accept the waste. If the state/region uses the contingency,

however, the cost of the actions would increase substantially. Because of the significant cost difference between these two sediment disposal options, the board recommends that the region separate from the proposed remedy a “trucked disposal” option and include it in the proposed plan for this site as a separate cleanup alternative. This will assure that the higher cost alternative will receive explicit consideration in the proposed plan. The board notes that the state/region will need to re-evaluate this and other alternatives using the nine NCP decision criteria if the favored pipeline option is not available.

As recommended, more costly alternatives are not considered as a “contingent” remedy. This issue is currently moot in any case, since the possible disposal facilities (in Brown County) are expected to be available, if needed.

- The state/region should explain why it did not consider an alternative that addresses OU 1 sediments disposal at the OU 3/4 disposal facility or the use of a similar dewatering and disposal facility near OU 1.

A similar facility with the unique characteristics of the potential Brown County sites (i.e., geological setting, proximity to the river and a “rails to trails” or other similar available right of way) do not exist for the OUI (Little Lake Butte des Morts) area. A pipeline, similar to OU3/4 is likely to not be implementable as there would be no readily available right of way, as exists for OU3/4. Furthermore, there is available landfill space in close proximity to LLBdM.

- Based on the information presented at the meeting, the board believes that the state/region has evaluated the potential short-term effects of cleanup-related releases to workers, nearby communities, and the environment. Given the stakeholder interest at this site, and the concerns often raised about the health and environmental effects of dredging and sediments handling at sediment sites in general, the board recommends that the region/state discuss its evaluation of these issues in the proposed plan and ROD.

These issues are addressed in the RIFS, and will be discussed in the Proposed Plan and ROD.

Thank you for your suggestions. We believe our responses to the Board’s recommendations, in combination with responses to other comments on the draft RIFS serve to make this document and the Proposed Plan significantly improved documents. If you have any questions on this matter, please call me at (312) 353-9773, or James Hahnenberg of my staff at (312) 353-4213.